

COMPLICATIONS OF HEART DISEASE

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WHAT IS HEART FAILURE?

- Heart unable to pump
- Inadequate cardiac output
- Myocardial hypertrophy
- Pulmonary/ systemic congestion
- Etiology
 - MI, HTN, pulmonary HTN, dysrhythmias, valvular disorders, pericarditis, cardiomyopathy

NEW YORK HEART ASSOCIATION CLASSIFICATION

- Class I
- Class II
- Class II
- Class IV

HEART FAILURE

- **Left-sided heart failure**
 - **Systolic heart failure**
 - EF ↓ 40%, pulmonary and systemic congestion
 - **Diastolic heart failure**
 - "stiffening"
- **Right sided heart failure**
 - ↓ right ventricle output
 - Systemic venous congestion

RISK FACTORS

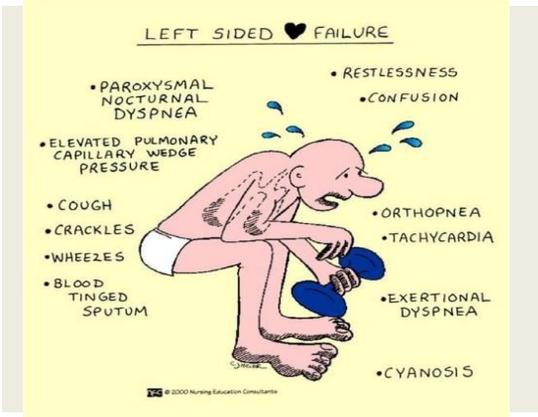
- **Left side heart failure**
 - HTN
 - CAD, angina, MI
 - Valvular disease
- **Right side heart failure**
 - Left side failure
 - Right ventricle MI
 - Pulmonary disease (COPD, ARDS)

DIAGNOSTIC TEST

- **BNP**
- **Hemodynamic monitoring**
- **Echocardiogram- 2D or 3D**
 - **Ejection fraction**
 - Left ventricle 55- 70%
 - Right ventricle 45-60%
- **CXR**
- **ECG**
- **Cardiac Enzymes, CBC, Chemistry**

SIGNS & SYMPTOMS

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| <p>Left Sided HF</p> <ul style="list-style-type: none"> ■ Dyspnea, orthopnea, nocturnal dyspnea ■ Fatigue ■ Displaced apical ■ S3 ■ Pulmonary congestion ■ Frothy sputum ■ AMS ■ S/S of organ failure ■ Hemodynamic findings: <ul style="list-style-type: none"> ■ CVP/ right atrial pressure ■ PAP ■ PAWP ■ Cardiac Output | <p>Right Sided HF</p> <ul style="list-style-type: none"> ■ JVD ■ Dependent edema ■ Abdominal distention, ascites ■ Fatigue, weakness ■ Nausea & anorexia ■ Polyuria ■ Hepatomegaly & tenderness ■ Weight gain ■ Hemodynamic findings: <ul style="list-style-type: none"> ■ CVP/right arterial pressure |
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ASSESSMENTS

- O2 sat
- Vital signs
- Heart rhythm
- Lung sounds
- Dyspnea
- Electrolytes
- Daily weight
- LOC
- I & O
- Sx of drug toxicity
- Support systems

INTERVENTIONS

- O2
- High fowler's
- Bedrest till stable
- Dietary restrictions- NA an fluid
- Medications
 - Diuretics
 - To decrease preload
 - ↓ afterload
 - ACE inhibitors, beta blockers, ARB's
 - Inotropic Agents
 - ↑ contractility → ↑ cardiac output
 - Vasodilators
 - Anticoagulants

COMPLICATIONS OF HEART FAILURE

- Pulmonary Edema
- Cardiogenic Shock
- Pericardial Effusion/ Pericardial tamponade
- Systemic and pulmonary emboli (Thromboembolism)
- Organ failure
- Cardiac arrest

PULMONARY EDEMA

- Fluid in the lungs
- Etiology
- Risk Factors
- S/S
 - Persistent cough, pink frothy sputum, tachypnea, dyspnea, orthopnea, restless, anxiety, unable to sleep, hypoxemia, cyanosis (late sx), crackles, tachycardia, confusion, stupor, S3
- Dx- ABG, CXR, hemodynamic monitoring
- Assessment
- Treatment

CARDIOGENIC SHOCK

- | | |
|--|---|
| <ul style="list-style-type: none"> ■ Pump failure/ heart failure ■ Etiology ■ S/S <ul style="list-style-type: none"> ■ Initial ■ Compensatory ■ Progressive ■ Refractory ■ Dx <ul style="list-style-type: none"> ■ ECG, echo, CT, cardiac catheterization, CXR, cardiac enzymes | <ul style="list-style-type: none"> ■ Assessments <ul style="list-style-type: none"> ■ VS, output, LOC, cardiac rhythm, skin color, temperature, moisture, capillary refill, turgor, hypoxia, hypotension, tachycardia, weak thready pulse ■ Treatment/ Management <ul style="list-style-type: none"> ■ Decrease afterload ■ Inotropics ■ vasopressors |
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PERICARDIAL EFFUSION/ CARDIAC TAMPONADE

- Fluid in pericardial sac
- Etiology
- S/S
 - JVD, chest fullness, SOB, low bp, pulsus paradoxus
 - Cardiac tamponade- falling systolic bp, narrowing pulse pressure, JVD, distant or muffled heart sounds
- Dx
 - echo, CXR
- Treatment/Management
 - Pericardiocentesis, pericardiotomy

CARDIAC ARREST

- V-fib, asystole, PEA
- S/S
- Treatment
 - IV fluid
 - Medications
 - Epinephrine
 - Vasopressin
 - Atropine
 - NaHCO₃
 - Magnesium
 - Antiarrhythmics
